

Thank you for your decision to inter-calibrate your research with the World Meteorological Organization [WMO] community.

Please note;

I have attached a DOC/NOAA purchasing document [MOU]. Purchaser **MUST** complete the text in red in this document or it cannot be accepted. **E-mail a signed copy of this document to Duane Kitzis at [duane.r.kitzis@noaa.gov](mailto:duane.r.kitzis@noaa.gov) or [refgas@noaa.gov](mailto:refgas@noaa.gov), or the project cannot be accepted or started. We cannot accept any other revisions to this document.**

**U.S. Universities are required to provide a copy of their Purchase Order with the signed MOU.**

Complete the following red text;

- Purchaser, Invoice contact name and address on the second page,
- DUN and Bradstreet Number, and Taxpayer ID on first page info required for all Requesting U. S. Businesses and Universities.
- Section 4, Name, telephone and complete shipping address of Requesting Business or University Section 6, Technical and administrative points of contact for this agreement,
- Section 9, Signature and signatory information.

If you have any questions email me, Duane Kitzis, [duane.r.kitzis@noaa.gov](mailto:duane.r.kitzis@noaa.gov)  
**I cannot accept the work to make your standards until I have received an e-mailed copy or 1 hard copy of this completed document. My contact information is as follows:**

Duane R. Kitzis

National Oceanic and Atmospheric Administration (NOAA)  
Global Monitoring Division (GMD)  
Carbon Cycle Group  
325 Broadway – R/GMD1  
Boulder, CO 80305, USA  
Phone: 303-497-6675  
Fax: 303-497-6290  
E-mail: [duane.r.kitzis@noaa.gov](mailto:duane.r.kitzis@noaa.gov)  
Web Site: <http://www.cmdl.noaa.gov/ccgg>

**MEMORANDUM OF UNDERSTANDING  
THROUGH WHICH**

**[Name of Requesting Business or University]**

**IS PURCHASING  
Trace Gas Air Standards**

**FROM  
Earth System Research Laboratory (ESRL)  
Global Monitoring Division (GMD)  
Office of Oceanic and Atmospheric Research (OAR)  
National Oceanic and Atmospheric Administration (NOAA)  
U.S. Department of Commerce (DOC)**

**Agreement No: \_\_\_\_\_**

**Contact Name and Address that NOAA should send invoices to:**

Required:

|                  |  |
|------------------|--|
| Name:            |  |
| Title:           |  |
| Address:         |  |
| City, State, Zip |  |
| Phone:           |  |
| Fax:             |  |
| E-Mail:          |  |

Required Information:

| <b>FOR REQUESTING U.S. BUSINESS or UNIVERSITY ONLY:</b> |  |
|---|--|
| <b>Dun &amp; Bradstreet No:</b>                         |  |
| <b>Tax Payer ID No:</b>                                 |  |

| <b>NOAA ESRL GMD ACCNT INFORMATION</b> |
|--|
| <b>DUNS/BPN:</b> 162008767             |
| <b>EIN:</b> 84-1040636                 |
| <b>ALC:</b> 13-14-0001                 |
| <b>OMB Max Code:</b> 006-48            |
| <b>TAS:</b> 13X1450                    |
| <b>BETC:</b> COLL                      |

## 1. PARTIES AND PURPOSE

This Memorandum of Understanding (MOU) establishes an agreement between \_\_\_\_\_ **[Name of Requesting Business or University]** and Earth System Research Laboratory, Global Monitoring Division<sup>1</sup> (ESRL/GMD), through which Non Federal Businesses and Universities will pay ESRL/GMD for calibrated trace gas air standards, including shipping and handling.

## 2. BACKGROUND

High precision measurements of the trace gases CO<sub>2</sub>, CH<sub>4</sub>, CO, N<sub>2</sub>O, and SF<sub>6</sub> are being undertaken by many laboratories of various nations in order to better understand the emissions and biogeochemical cycles of these gases. There can be no integration of all these various measurement projects unless the data are referenced to common well-defined calibration scales. The consistency required for optimally usable atmospheric CO<sub>2</sub> measurements and intercomparison must be no worse than 0.1 umol/mol for the northern hemisphere and 0.05 umol/mol in the southern hemisphere [World Meteorological Organization (WMO), 1993]. Because of stringent quality controls necessary for the measurement of long-lived trace gases, stable reference gas standards are an integral part of any long-term measurement program.

ESRL GMD serves as the Central Calibration Laboratory for the WMO Global Atmosphere Watch. In this role, GMD maintains and distributes gas standards for CO<sub>2</sub>, CH<sub>4</sub>, CO, N<sub>2</sub>O, and SF<sub>6</sub> for atmospheric monitoring. The need for gas standards at ambient mixing ratios has not been filled by a private company or corporation demonstrating the desired level of consistency over time.

The [Greenhouse Gas Global Reference Network](#)<sup>2</sup> group (GGGRN) of ESRL/GMD has been involved with making CO<sub>2</sub> standards since the early 1970s [Miller, 1974] and over the years has expanded to include methane, carbon monoxide, and the stable isotopes of CO<sub>2</sub>. GGGRN can fill and calibrate compressed gas cylinders for use as standard reference gases by other laboratories for measurements of CO<sub>2</sub>, CH<sub>4</sub>, CO, and the stable isotopes of CO<sub>2</sub> (<sup>13</sup>C and <sup>18</sup>O).

## 3. AUTHORITY

The authorities for ESRL/GMD to enter into this agreement are:

- (1) The "Special Studies" authority, 15 U.S.C. § 1525 (first paragraph), which permits DOC to provide, upon the request of any person, firm, or public or private organization (a) special studies on matters within the authority of the Department of Commerce, including preparing from its records special compilations, lists, bulletins, or reports, and (b)

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<sup>1</sup> <http://www.esrl.noaa.gov/gmd/>

<sup>2</sup> <http://www.esrl.noaa.gov/gmd/ccgg/index.html>

furnishing transcripts or copies of its studies, compilations, and other records.

- (2) 33 U.S.C. § 883d, which authorizes NOAA to increase engineering and scientific knowledge by conducting developmental work for the improvement of surveying and cartographic methods, instruments, and equipments; and to conduct investigations and research in geophysical sciences (including geodesy, oceanography, seismology, and geomagnetism).

#### **4. TERMS AND CONDITIONS**

ESRL/GMD will achieve full cost recovery for the goods and services it is providing under this agreement.

Requesting Business or University assumes responsibility for the safe handling of compressed gas cylinders upon the receipt of cylinders from ESRL/GMD.

Compressed Gas Cylinders are regulated by U.S. Law under CFR Title 49, parts 106-179.

This Agreement is subject to the availability of funds.

#### **Standards:**

Unless otherwise stated, cylinder is size N150, 29.5 liter internal volume, Ceodeux brass packless, GCA590 valved.

#### **Logistics for services are:**

4-6 weeks to fill

4-6 weeks to calibrate

Isotopes may take an additional 3 months.

Standard turn around time varies due to seasonal logistics and calibration queue.

#### **Standards will be delivered to:**

Requesting Business or University must state who and where the standards will be shipped to. Ship and Deliver Standards to:

|                  |  |
|------------------|--|
| Name:            |  |
| Title:           |  |
| Address:         |  |
| City, State, Zip |  |
| Phone:           |  |
| Fax:             |  |
| E-Mail:          |  |

INCLUDE IMPORTATION BROKER CONTACT INFORMATION IF THERE IS ONE.

For importation pro-forma invoice, we need your tax ID number: \_\_\_\_\_

**Return Shipping and handling:**

**DAP – Delivered at Place (named place of destination)**

Requesting Business and Universities pay for carriage to the named place, except for costs related to import clearance, and assumes all risks prior to the point that the goods are ready for unloading by the buyer. Import clearance = import duty and VAT and not the Import Customs Clearance. There is no seller obligation for import clearance.

*One recalibration for CO<sub>2</sub>, CH<sub>4</sub>, CO, N<sub>2</sub>O/SF<sub>6</sub> after use is included in the cost of the standard gas. THIS IS HIGHLY RECOMMENDED EVERY 3 YEARS FOR PRECISION WORK AND SHOULD AT LEAST BE PERFORMED AT THE END OF THE CYLINDER'S USE [20 atm pressure].*

ESRL/GMD will provide calibration of gases to **Requesting Business or University**, who **will pay ESRL/GMD in advance for its services**, based on the following price table:

| <b>SERVICE as of October 2017</b>   | <b>COST</b>    | <b>UNIT</b> | <b>Q.</b> | <b>TOTAL</b>      |
|---|----------------|-------------|-----------|-------------------|
| <b>N150 Al cylinder, 29.5 liter, filled</b>   | <b>\$1,070</b> | <b>Each</b> | <b>0</b>  | <b>\$0.00</b>     |
| <b>N265 Aluminum cylinder, 46.4 liter volume, [+ 8 weeks], filled</b>                           | <b>\$2,470</b> | <b>Each</b> | <b>0</b>  | <b>\$0.00</b>     |
| <b>N80 Aluminum cylinder, 15.8 liter volume, filled</b>   | <b>\$970</b>   | <b>Each</b> | <b>0</b>  | <b>\$0.00</b>     |
| <b>N60 Aluminum cylinder, 10.8 liter volume, filled</b>   | <b>\$860</b>   | <b>Each</b> | <b>0</b>  | <b>\$0.00</b>     |
| <b>N30 Aluminum cylinder, 5.9 liter volume, filled</b>  | <b>\$725</b>   | <b>Each</b> | <b>0</b>  | <b>\$0.00</b>     |
| <b>NWR filling only</b>   | <b>\$560</b>   | <b>Each</b> | <b>0</b>  | <b>\$0.00</b>     |
| <b>Filling Aculife AL150 or stainless steel 34L by HATS system</b>                              | <b>\$970</b>   | <b>Each</b> | <b>0</b>  | <b>\$0.00</b>     |
| <b>Aculife cylinder AL150</b>   | <b>\$631</b>   | <b>Each</b> | <b>0</b>  | <b>\$0.00</b>     |
| <b>Stainless steel cylinder 35L</b>   | <b>\$5,040</b> | <b>Each</b> | <b>0</b>  | <b>\$0.00</b>     |
| <b>Multi-species targeting</b>  | <b>\$80</b>    | <b>Each</b> | <b>0</b>  | <b>\$0.00</b>     |
| <b>CO<sub>2</sub> on WMO scale 250-600 µmol/mol, CH<sub>4</sub> WMO scale 300-5000 nmol/mol</b> | <b>\$1,475</b> | <b>Each</b> | <b>0</b>  | <b>\$0.00</b>     |
| <b>CO<sub>2</sub> outside WMO scale, CH<sub>4</sub> analysis</b>                                | <b>\$1,700</b> | <b>Each</b> | <b>0</b>  | <b>\$0.00</b>     |
| <b>Stable Isotopes of CO<sub>2</sub> [<sup>13</sup>C &amp; <sup>18</sup>O]</b>                  | <b>\$790</b>   | <b>Each</b> | <b>0</b>  | <b>\$0.00</b>     |
| <b>CO RANGE 40-500 nmol/mol</b>   | <b>\$820</b>   | <b>Each</b> | <b>0</b>  | <b>\$0.00</b>     |
| <b>N<sub>2</sub>O / SF<sub>6</sub> analysis by ECD</b>  | <b>\$750</b>   | <b>Each</b> | <b>0</b>  | <b>\$0.00</b>     |
| <b>Calibration CFC by ECD</b>   | <b>\$775</b>   | <b>Each</b> | <b>0</b>  | <b>\$0.00</b>     |
| <b>Calibration by GCMS</b>  | <b>\$850</b>   | <b>Each</b> | <b>0</b>  | <b>\$0.00</b>     |
| <b>Additional recalibrations Price (US Dollars):</b>  | <b>\$310</b>   | <b>Each</b> | <b>0</b>  | <b>\$0.00</b>     |
| <b>Shipping and handling –</b>  | <b>\$300</b>   | <b>Each</b> | <b>0</b>  | <b>\$0.00</b>     |
| <b>Shipping and handling – U.S. Mainland</b>  | <b>\$160</b>   | <b>Each</b> | <b>0</b>  | <b>\$0.00</b>     |
| <b>Financial Management Service Collection Cost *</b>   | <b>\$1.35</b>  | <b>Each</b> | <b>1</b>  | <b>\$1.35</b>     |
|   |                |             |           | <b>AMOUNT DUE</b> |
| <b>TOTAL AMOUNT OF PAYMENT TO ESRL/GMD</b>  |                |             |           | <b>\$0.00</b>     |

\* Required on all agreements by the Department of Treasury per Office of Management & Budget Circular A-25, 15-01 February 1, 2015 and User Fee Treasury Financial Management Service Revenue Collection Expenses //Policy Memorandum 17-01 dated February 16, 2017.

## **5. TRANSFER OF FUNDS**

**Payment is required in advance of, or simultaneously with**, the rendering of goods or services provided by ESRL/GMD.

Requesting Business or University is responsible for all payment transfer fees and costs.

To purchase from ESRL/GMD, one (1) original signed copy of this “Memorandum of Understanding”, along with payment or appropriate funding document should be mailed to the ESRL/GMD Technical Contact listed in the contact section below.

**Payment should reference project number 36R1MZKPPT, as appropriate, and be made in US dollars payable to NOAA/DOC.**

**If you are unable to make payment upon submission of signed MOU, you will receive a NOAA invoice.** NOAA will invoice the Requesting Business or University for the full amount of goods or services upon receipt of the fully signed MOU. **The Requesting Business or University is expected to make payment upon receipt of the NOAA invoice** by check according to the Invoice instructions, or electronic payment can be made according to Attachment A instructions.

All funding documents (MIPR's, PO's, etc.), if submitted, **must** contain the following information:

- All costs shown in U.S. Dollars,
- All text in English,
- A clear description of goods and services being paid for,
- Clear invoicing and ship to (standards delivered to) instructions along with names, addresses, phones, faxes and email addresses.
- Funding document should reference Project Number 36R1MZKPPT as appropriate, and be made payable in US dollars to NOAA/DOC
- Universities are required to provide a copy of their Purchase Order (PO).

**For Requesting U.S. Businesses/Universities only:**

- Employer Identification Number(s),
- Dun & Bradstreet Number(s),

## 6. CONTACTS

### The technical points of contact for this agreement are:

#### NOAA GMD Technical Contact:

Duane Kitzis/GGGRN  
Earth System Research Laboratory (ESRL)  
Global Monitoring Division (GMD)  
National Oceanic and Atmospheric Administration (NOAA)  
325 Broadway – R/GMD1  
Boulder, CO 80305, USA  
Phone: 303-497-6675 (Kitzis)  
Fax: 303-497-6290  
E-mail: [duane.r.kitzis@noaa.gov](mailto:duane.r.kitzis@noaa.gov)  
Web Site: <http://www.esrl.noaa.gov/gmd/ccgg/index.html> (GGGRN)

#### Business or University Technical Contact:

|                  |  |
|------------------|--|
| Name:            |  |
| Title:           |  |
| Address:         |  |
| City, State, Zip |  |
| Phone:           |  |
| Fax:             |  |
| E-Mail:          |  |

### Fiscal and budgetary communications can be directed to:

#### NOAA GMD Budgetary Contact:

Bill Cushman  
Budget Analyst  
NOAA/ESRL/GMD  
325 Broadway – R/GMD  
Boulder, CO 80305, USA  
Phone: 720-233-5195  
E-mail: [bill.cushman@noaa.gov](mailto:bill.cushman@noaa.gov)

#### Business or University Budgetary Contact:

|                  |  |
|------------------|--|
| Name:            |  |
| Title:           |  |
| Address:         |  |
| City, State, Zip |  |
| Phone:           |  |
| Fax:             |  |
| E-Mail:          |  |

The parties agree that if there is a change regarding the information in this section, the party making the change will notify the other party in writing of such change.

## **7. DURATION OF AGREEMENT, AMENDMENTS AND MODIFICATIONS**

This agreement will become effective when signed by both parties. The agreement will terminate when the Requesting Business receives all materials and analysis results, but no later than three years from the effective date. This agreement may be amended at any time by mutual written consent of the parties

Any party may terminate this agreement by providing thirty days written notice to the other party. In the event of termination, all amounts unexpended by ESRL/GMD as of the date of ESRL/GMD's receipt of a notice of termination from the Requesting Business or University, or as of the date of ESRL/GMD's sending a notice of intent to terminate to the Requesting Business or University, shall be promptly refunded to Requesting Business or University, less any amounts required to close the account.

## **8. RESOLUTION OF DISAGREEMENTS**

Should disagreements arise on the interpretation of the provisions of this agreement or amendments and/or revisions thereto, that cannot be resolved at the operating level, the area(s) of disagreement shall be stated in writing by each party and presented to the other party for consideration. If agreement or interpretation is not reached within 30 days, the parties shall forward the written presentation of the disagreement to respective higher officials for appropriate resolution.

If a dispute related to funding remains unresolved for more than 30 calendar days after the parties have engaged in an escalation of the dispute, disputes will be resolved in accordance with instructions provided in the Treasury Financial Manual (TFM) Volume I, Part 2, Chapter 4700, Appendix 10, available at <http://www.fms.treas.gov/tfm/index.html>.

## 9. SIGNATURES

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**[Signature of person who has authority  
to bind Requesting Business or University  
to this agreement]**

Name:

Title:

Address:

City, State, Zip:

Phone:

Fax:

E-Mail:

---

Date

---

David Holst  
Chief Financial Officer/CAO  
Mail Code: R  
Office of Oceanic and Atmospheric Research  
National Oceanic and Atmospheric Administration  
U.S. Department of Commerce  
1305 East West Highway, Bldg. SSMC4  
Silver Spring, MD 20910-3278  
Phone: (240) 533-0909 x148  
E: Mail: [david.holst@noaa.gov](mailto:david.holst@noaa.gov)

---

Date

**ATTACHMENT A – PAYMENT INSTRUCTIONS**

Please be sure to include within the funds transfer identifying information linking the payment to the invoice, i.e., ESRL/NOAA invoice#, Agreement #, PO#/Funding document, and Project # as referenced in Part 4 of this agreement.

If there are problems completing the bank transfer, or check payment contact Jones Harbor in NOAA Finance at [Jones.Harbor@noaa.gov](mailto:Jones.Harbor@noaa.gov) for funds transfer assistance. Jones phone number is 301-444-2133.

Please note that there are 2 distinct methods of electronic funds transfers (1) or (2) or payment can be made by choice (3) a check. Note: account numbers, etc., are different and unique for both methods.

**CHOICE (1) - FEDWIRE**

**UNITED STATES DEPARTMENT OF COMMERCE - NOAA  
FEDWIRE Instructions**

Please provide the following instructions to your Financial Institution for the remittance of Fedwire payments to NOAA.

| FEDWIRE FIELD TAG | FEDWIRE FIELD NAME  | REQUIRED INFORMATION                                     |
|-------------------|---|--|
| {1510}            | Type/Subtype  | <b>1000</b>  |
| {2000}            | Amount  | <i>(enter payment amount)</i>                            |
| {3400}            | Receiver ABA routing number *<br>(see notation * below chart) | <b>021030004</b>   |
| {3400}            | Receiver ABA short name                                       | <b>TREAS NYC</b>   |
| {3600}            | Business Function Code  | <b>CTR</b> <i>(or CTP)</i>                               |
| {4200}            | Beneficiary Identifier (account number)                       | <b>13140001</b>  |
| {4200}            | Beneficiary Name  | <b>NOAA</b>  |
| {5000}            | Originator  | <i>(enter the name of the originator of the payment)</i> |
| {6000}            | Originator to Beneficiary Information – Line 1                | <b>NOAA GMD</b>  |
| {6000}            | Originator to Beneficiary Information – Line 2                | <b>36R1MZKPPT (Project Number)</b>                       |
| {6000}            | Originator to Beneficiary Information – Line 3                | <b>MOU Number/Receivable Number</b>                      |
| {6000}            | Originator to Beneficiary Information – Line 4                | <b>PO Number</b>   |

\* The financial institution address for Treasury’s routing number is: FRB of New York, 33 Liberty Street, New York, NY 10045

**NOTE: A foreign bank cannot make the payment directly – it must work through a U.S correspondent bank. The payment must be in U.S. dollars. The purchasing business/company or University is required to pay all Fedwire Fees, please make sure these fees are included in your payment.**

| <b>NOAA FINANCE AGENCY CONTACT- FOR FEDWIRE PAYMENT ISSUES</b> |                     |                                |
|--|---------------------|--------------------------------|
| <b>Sharon L. Allen</b>   | <b>206-526-4638</b> | <b>WOB – Seattle, WA</b>       |
| <b>Reubena Acuesta</b>   | <b>301-444-2171</b> | <b>Hdqtrs – Germantown, MD</b> |
| <b>Bernard Gitlin</b>  | <b>301-444-2159</b> | <b>Hdqtrs – Germantown, MD</b> |
| <b>Robin Y. Yim</b>  | <b>206-526-4658</b> | <b>WOB – Seattle, WA</b>       |
| <b>Seong S. Yang</b>   | <b>206-526-4637</b> | <b>WOB – Seattle, WA</b>       |

**CHOICE (2) – ACH Credit Instructions:**

**UNITED STATES DEPARTMENT OF COMMERCE - NOAA  
ACH Credit Instructions**

Please provide the following instructions to your Financial Institution for the remittance of Automated Clearing House (ACH) credits to NOAA.

| NACHA RECORD TYPE CODE | NACHA FIELD | NACHA DATA ELEMENT NAME (WITH SYMBOL REFERENCE)   | REQUIRED INFORMATION                  |
|------------------------|-------------|---|---------------------------------------|
| 5                      | 3           | Company Name  | (enter the name of the <b>payor</b> ) |
| 5                      | 6           | Standard Entry Class Code   | <b>CCD</b>                            |
| 5                      | 9           | Effective Entry Date  | (enter intended settlement date)      |
| 6                      | 2           | Transaction Code*   | <b>22</b>                             |
| 6                      | 3 & 4       | Receiving DFI Identification (ABA routing #) @  | <b>051036706</b>                      |
| 6                      | 5           | DFI Account Number  | <b>540023</b>                         |
| 6                      | 6           | Amount  | (enter payment amount)                |
| 6                      | 8           | Receiving Company Name #  | <b>DOC NOAA GMD 36R1MZKPPT #</b>      |
| SYMBOL REFERENCE       |             | DATA ELEMENT NAME   |                                       |
| *                      |             | ACH <u>debits</u> are not permitted to this ABA routing number. All debits received will be automatically returned  |                                       |
| @                      |             | Bank Name: Credit Gateway – ACH Receiver<br>Address: 33 Livingston Ave. St. Paul, MN 55107 Phone: 1-877-815-1206  |                                       |
| #                      |             | <b>Required</b> Identifying Information such as <b>DOC NOAA GMD, Project # 36R1MZKPPT, MOU #, Invoice #</b><br><b>If the payment cannot be identified, it will be returned.</b> |                                       |

**The Requesting Business or University is required to pay all Wire Transfer Fees, please make sure these fees are included in your payment.**

| NOAA FINANCE AGENCY CONTACT - FOR ACH PAYMENT ISSUES: |                     |                          |
|---|---------------------|--------------------------|
| <b>Sharon L. Allen</b>                                | <b>206-526-4638</b> | <b>WOB – Seattle, WA</b> |
| Reubena Acuesta                                       | 301-444-2171        | Hdqtrs – Germantown, MD  |
| Bernard Gitlin  | 301-444-2159        | Hdqtrs – Germantown, MD  |
| Robin Y. Yim  | 206-526-4658        | WOB – Seattle, WA        |
| Seong S. Yang   | 206-526-4637        | WOB – Seattle, WA        |

**CHOICE 3 – SENDING A CHECK:**

Note: When trying to make an electronic payment, if your bank goes through their US based partner, the payment should transfer. Should the Federal Reserve Bank (FRB) not recognize your foreign (to USA) bank, it would then be best to send payment in the form of a check. Should payment be made by check, please mail payment to the following address:

**MAKE CHECK PAYABLE TO:**

**U.S. Department of Commerce, NOAA**

**MAIL PAYMENT WITH COPY OF THE INVOICE TO:**

**U.S. Department of Commerce,**

**NOAA/ESRL/GMD**

**PO Box 979008**

**St. Louis, MO 63197-9000**

**Reference the following on all payments:**

- DOC/NOAA GMD
- 36R1MZK-PPT Project #, and
- MOU# in memo area of check.